

Psychological Predictors of Entrepreneurial Interest in Japan

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1. Introduction
 - 1.1 Entrepreneurial Cognition
 - 1.2 Life Goals
 - 1.3 Risk Propensity
 - 1.4 General Attitudes toward Challenges and Difficulties
2. Method
 - 2.1 Respondents
 - 2.2 Measures
3. Results
4. Discussion

1. Introduction

Over the past decade, Japan has implemented institutional, legal, and financial reforms to increase the number of start-up ventures. Despite these initiatives, early-stage entrepreneurial activity in Japan remains flat compared to other industrial nations such as the U.S. or the U.K. The Global Entrepreneurship Monitor reports that in 2009 the proportion of Japanese aged 18-64 who were involved in entrepreneurial activities as a nascent entrepreneur or as an owner manager of a new business was a mere 3.3 percent, the lowest rate among the 54 countries investigated.

Researchers and lay people alike list the Japanese aversion toward risk and failure as major barriers to Japanese entrepreneurship (for example, Feigenbaum & Brunner, 2002; Helms, 2003). Yet, to our knowledge, very little quantitative research has examined the socio-psychological determinants associated with entrepreneurial

motivation in Japan. Our research aimed at identifying socio-psychological predictors of entrepreneurial interest among employees working in the research and development divisions of a major Japanese company. We examined a wide range of variables that had been previously identified as predictors of entrepreneurial interest in the European and American settings.

1.1 Entrepreneurial Cognition

Research on entrepreneurial cognition has regained much attention over the past few years (see Mitchell, Busenitz, Lant, McDougall, Morse, & Smith, 2002). We expected that believing in the importance of innovation, perceiving new business as opportunities (rather than risks), perceiving work as something that one creates (rather than receives), and having self-efficacy in starting a new business would each contribute to greater interest in creating a start-up. Robinson, Stimpson, Huefner, and Hunt (1991) found that entrepreneurs possess a more positive attitude toward innovation than non-entrepreneurs. Barbosa, Kickul, and Liao-Troth (2007) found that appraising the uncertainty of starting a business as an opportunity rather than a risk was associated with greater entrepreneurial intention. Barbosa and colleagues also found that having confidence (self-efficacy) in starting a new business predicted entrepreneurial intention (see also Krueger, Reilly, & Carsrud, 2000, and Tkachev & Kolvereid, 1999).

1.2 Life Goals

We also examined whether the pursuit of some goals could predict interest in start-up creation. Amit and his colleagues (Amit, MacCrimmon, Zietsma, & Oesch, 2000) have examined concomitant factors which entrepreneurs value. They are: attaining wealth, maintaining stability, realizing ideas, managing an ideal lifestyle, exerting power, meeting challenges, being innovative, motivating and influencing others, being independent, standing out from the crowd, and making a contribution to society. Our study focused on three values that entrepreneurs judged three times as important as wealth attainment (Amit et al., 2000): realizing ideas, meeting challenges, and being innovative. We tested whether employees who have the goals of realizing their dream, trying out something challenging, and being in the vanguard of the time show greater interest in creating a startup.

1.3 Risk Propensity

Research on entrepreneurs' risk propensity has provided conflicting findings. Some research suggests that entrepreneurs engage in riskier behavior than do non-entrepreneurs (for example, Begley & Boyd, 1987; Cromie & O'Donoghue, 1992), while others report no difference between the two groups (for example, Brockhaus, 1980; Low & MacMillan, 1988). Stewart Jr. and Roth (2001) conducted a meta-analysis

of studies that compared risk propensity between entrepreneurs and managers and found significant but moderate differences between the two groups. Controversial findings might have resulted from the fact that, in a given situation, entrepreneurs tend to perceive lower risk than non-entrepreneurs (Palich & Bagby, 1995). In our study, we chose to measure employee preferences between a certain and its riskier alternatives to see whether a preference for a riskier alternative correlates with entrepreneurial interest.

1.4 General Attitudes toward Challenges and Difficulties

In addition to entrepreneurial cognition, life goals, and risk propensity, we predicted that people with a generally high level of self-efficacy and those who do not fear failure would show a greater interest towards creating a start-up. Fear of failure has been repeatedly identified as one of the major barriers in starting a business (for example, Begley & Wee-Liang, 2001; Kouriloff, 2000). In contrast, general self-efficacy has been repeatedly identified as an important antecedent for entrepreneurship. For instance, undergraduates aspiring to become entrepreneurs have reported higher levels of general self-efficacy than those who have aspired to become managers; similarly, entrepreneurs were higher in general self-efficacy than non-entrepreneurs (Chen, Green, & Crick, 1998; Markman, Balkin, & Baron, 2002).

Although not many studies have investigated the effects of growth orientation in a business setting, our study included a measure of how much people perceive failures and difficulties as an opportunity for personal growth. Research in social and educational psychology indicates that belief in improvement and a general orientation toward learning can reduce the threat of failure, encourage persistence, and promote challenge seeking (Dweck, 2000; Niiya, Crocker, & Bartmess, 2004). Therefore, we hypothesized that a growth orientation would buffer against the fear of failure and would predict greater entrepreneurial interest.

Because general self-efficacy, growth orientation, and fear of failure are general individual characteristics that are not specific to entrepreneurs, we speculated that they might not directly predict entrepreneurial interest. Instead, we explored whether they relate indirectly, by predicting other antecedents of entrepreneurial interest, such as entrepreneurial cognition, life goals, and risk propensity.

2. Method

2.1 Respondents

We asked the human resources department of a major Japanese chemical manufacturer to distribute our questionnaires to their researchers and developers, either by handing out the paper questionnaires or by attaching the questionnaires to e-mails. The company, which was founded over 50 years ago and is listed in the first

section of the Tokyo Stock Exchange, produces electronics, semiconductors, automobiles, medical, and architectural supplies. Respondents were R & D researchers from two of their three research institutes and one of their two factories. All respondents worked mainly in basic and applied research. Engineers in manufacturing technology and frontline operators were not included in our sample. To target those who might have some interest in start-ups, we asked that the respondents be between their late twenties (the youngest age one could move from rank-and-file to executive) and their early fifties (the eldest age one could remain active in front line research).

We received replies from 114 respondents, including 21 general managers (18 percent), 51 managers or chief scientists (45 percent), 10 assistant managers or senior staff (9 percent), and 28 rank-and-file employees (25 percent). Most respondents were male ($n = 103$; 90 percent) and their ages ranged between 28 and 55 with a mean of 41.4 ($SD = 5.62$) and a median of 42. About half of the respondents had a master's degree ($n = 60$; 53 percent); only a few had a doctoral degree ($n = 9$; 8 percent). The remainder ($n = 42$; 37 percent) had an undergraduate degree.

2.2 Measures

(1) Entrepreneurial Interest

We took the average of the following five items to create an index of entrepreneurial interest: "I would like to create a start-up if I could find good technological seeds," "I would like to create a start-up based on my research if I could find an appropriate CEO," "I would like to create a start-up based on my research and be its CEO," "If someone came forward with good technological seeds, I would like to take part in it," and "I would like to be involved in a start-up, serving as a technological consultant" ($\alpha = .84$). We also included one item that assessed their interest in corporate venturing ("If I have a chance to get involved in corporate venturing, I would like to contribute.") to statistically control for its effect. Respondents used a 5-point Likert type scale ranging from 1 = *Not at all* to 5 = *Very much*.

(2) Entrepreneurial Cognition

All the measures below (unless otherwise noted) used a 7-point Likert type scale ranging from 1 = *does not describe me at all* to 7 = *describes me very much*.

Positive Belief in Innovation. We averaged two items from the Entrepreneurial Attitude Orientation scale (Robinson, 1991): "I believe it is important to continually look for new ways to do things in business" and "I believe it is important to approach business opportunities in unique ways" ($r = .46$, $p < .001$).

Job Perception. Two items assessed respondents' perception of autonomy at work: "Work is something that one creates" and "Work is something that one receives from others". Because the two items were significantly negatively correlated ($r = -.60$, $p < .001$), we reversed the second item and averaged the two.

Opportunistic Perception. How much the respondents perceived starting a new business as an opportunity (rather than a risk) was measured by averaging the following three items from Barbosa, Kickul, and Liao-Troth's (2007) Multidimensional Scale of Entrepreneurial Risk Perception: "I see the possibility of starting a new business as a potential opportunity to pursue," "Starting a business may affect my personal life in a positive way," and "Starting a business may affect my social life in a positive way" ($\alpha = .60$).

Entrepreneurial Self-Efficacy. We included one item measuring their self-efficacy in starting a new business: "If I wanted to, I could easily start and run a business" (Tkachev & Kolvereid, 1999).

(3) Life Goals

We asked respondents to rate how much they pursued the following goals in their life on a scale ranging from 1 = *Not at all* to 7 = *Extremely*: "Realize my dream," "Try out something challenging," and "Be in the vanguard of the time" to test whether having these goals predict greater entrepreneurial interest.

(4) Risk Propensity

We assessed the tendency of respondents to choose a riskier option over a more certain option using two items adapted from the Risk Style Scale (Forlani & Mullins, 2000). Respondents indicated their preference for each of the following pairs: "An 80% chance of getting 4,000,000 yen vs. Receiving 3,200,000 yen for sure," "A 50% chance of getting 5,000,000 yen vs. Receiving 2,500,000 yen for sure." We combined the two items to create an index of risk propensity so that higher values indicate a greater likelihood of selecting riskier choices ($r = .58, p < .001$).

(5) General Attitude toward Challenges and Difficulties

Fear of Failure. Two items from Elliot and Church's (2001) fear of failure scale assessed the degree to which the respondents fear failure: "When I start doing poorly on a task, I feel like giving up" and "If given a choice, I have a tendency to select a relatively easy task rather than risk failure" ($r = .53, p < .001$).

Growth Orientation. We used the following two items from Dykman's (1998) Goal Orientation Inventory to measure the extent to which the respondents seek to improve from setbacks: "I approach stressful situations knowing that the important thing is for me to learn and grow from these experiences" and "The attitude I take toward possible setbacks and disappointments is that they'll end up being good learning experiences" ($r = .55, p < .001$).

General Self-Efficacy. Three items from Chen, Gully, and Eden's (2001) General Self-Efficacy Scale measured respondents' overall confidence in life: "I can handle the situations that life brings," "I am strong enough to overcome life's struggles," and "I

Table 1
Means, Standard Deviations, and Correlations among Key Variables

	N	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Entrepreneurial Interest	95	2.46	.78																	
2 Positive Belief in Innovation	113	5.06	1.05	.24*																
3 Job Perception	113	5.52	.91	.25*	.39**															
4 Opportunistic Perception	114	5.15	.80	.34**	.25**	.14														
5 Entrepreneurial Self-Efficacy	114	2.31	1.03	.39**	-.01	.09	.14													
6 Life Goal: Realize one's dream	112	4.96	1.18	.24*	.13	.27**	.03	.07												
7 Life Goal: Try out something	113	4.34	1.14	.30**	.17	.19*	.18	.01	.23*											
8 Life Goal: Be in the vanguard	110	3.70	1.49	.39**	.19*	.08	.16	.32**	.35**	.40**										
9 Risk Propensity	113	.94	.89	.34**	.13	.17	.12	.26**	.15	.20*	.15									
10 Fear of Failure	113	3.45	1.05	-.38**	-.18	-.31**	-.03	-.10	-.26**	-.42**	-.26**	-.27**								
11 Growth Orientation	113	5.58	.88	.08	.32**	.23*	.28**	-.01	.35**	.33**	.22*	.18	-.20*							
12 General Self-Efficacy	112	4.61	1.06	.11	.36**	.33**	.15	.23*	.21*	.23*	.22*	.30**	-.18	.41**						
13 Sex (0 = female; 1 = male)	111	.92	.27	-.07	.05	-.03	.08	-.04	-.15	.06	.12	-.09	-.03	.04	-.07					
14 Age	110	41.42	5.62	-.07	.04	.12	-.01	-.13	.05	.07	-.14	.02	.07	.01	-.16	.25**				
15 General Manager (0 = no; 1 = yes)	110	.19	.39	-.05	.29**	.30**	-.01	-.06	.12	.11	-.03	.05	-.22*	.11	.17	.14	.36**			
16 Manager (0 = no; 1 = yes)	110	.46	.50	.05	.02	.08	.10	.01	-.16	-.07	.01	-.01	.11	-.06	-.11	.05	.20*	-.45**		
17 Leader (0 = no; 1 = yes)	110	.09	.29	-.14	-.10	-.17	-.15	-.01	-.01	-.12	-.10	.01	.23*	-.14	-.16	-.03	-.02	-.15	-.29**	
18 Interest in Corporate Venturing	95	4.03	.81	.26*	.19	.33**	.24	.10	.07	.24*	.25*	.17	-.28**	.22*	.14	-.04	-.07	.06	.25*	-.16

* < .05; ** < .01

usually feel I can handle the typical problems that come up in life” ($\alpha = .78$).

Two bilinguals translated the English questions into Japanese using the back-translation method.

3. Results

Table 1 presents the means, standard deviations, and correlations of the variables. We first examined whether the different measures of entrepreneurial cognitions, life goals, risk propensity, and general attitudes toward challenges and difficulties predicted entrepreneurial interest using multiple regressions. We conducted separate regressions for each predictor, controlling for respondents’ age, sex, and job status. As shown in Table 2, all the predictors, except growth orientation and general self-efficacy, significantly predicted entrepreneurial interest in the predicted direction (see also Figure 1): Interest in start-ups increased as employees attributed greater importance to finding new ways of doing business ($\beta = .30, p < .05$), perceived themselves as being responsible for creating work ($\beta = .27, p < .05$), had a more opportunistic view about starting a new business ($\beta = .33, p < .01$), and were more self-confident in starting a new business ($\beta = .41, p < .001$). Interest in start-ups also increased as employees pursued the goal of realizing their dreams ($\beta = .23, p < .05$), meeting challenges ($\beta = .30, p < .01$), and joining the vanguard ($\beta = .41, p < .001$). Also consistent with our hypothesis, choosing a riskier alternative on the risk propensity scale was associated with greater entrepreneurial interest ($\beta = .36, p = .001$). Fear of failure predicted lower entrepreneurial interest ($\beta = -.41, p < .001$), but, unexpectedly, growth orientation and general self-efficacy did not directly predict entrepreneurial interest (β s = .06 and .10, *n.s.*).

Table 2
Summary of Regression Analyses Predicting Entrepreneurial Interest

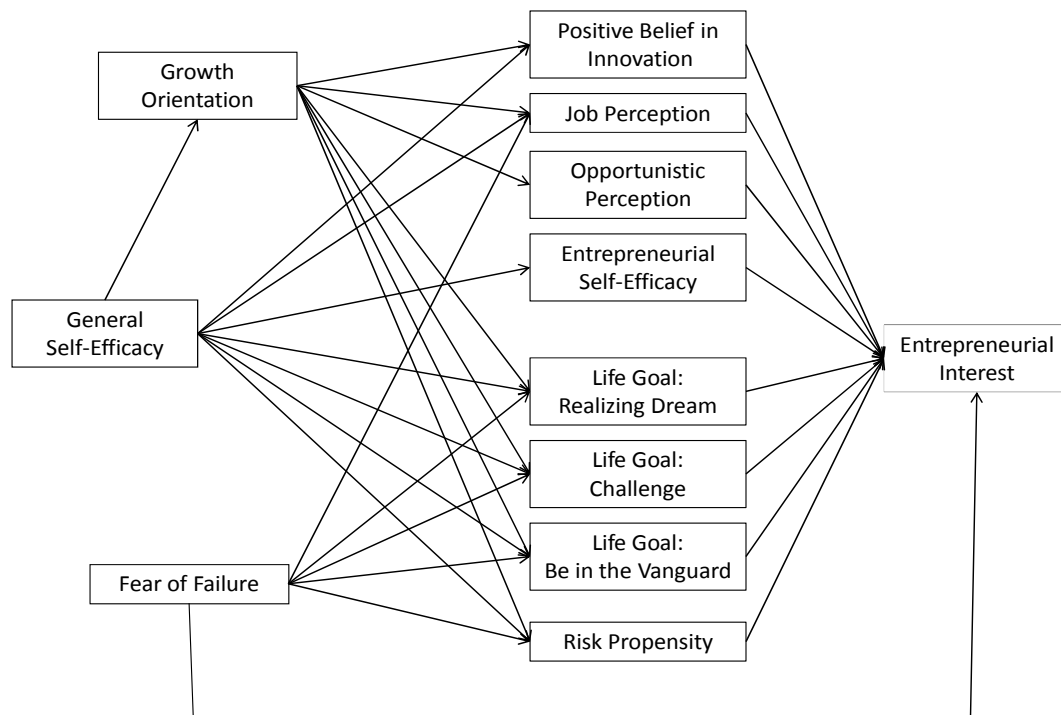
	Model 1 ^a					Model 2 ^b				
	B	β	<i>p</i>	R^2_{total}	ΔR^2	B	β	<i>p</i>	R^2_{total}	ΔR^2
Constant	2.94		<.001			1.45		.11		
Sex (0 = female; 1 = male)	-.15	-.05	.63			-.13	-.05	.68		
Age	-.01	-.06	.69			.01	.04	.78		
General Manager (0 = no; 1 =	-.08	-.04	.81			-.30	-.15	.34		
Manager (0 = no; 1 = yes)	.01	.01	.96			-.21	-.13	.40		
Leader (0 = no; 1 = yes)	-.42	-.13	.25			-.40	-.12	.27		
Interest in Corporate Venturing						.27	.28	.02	.09	.06
Positive Belief in Innovation	.20	.30	.02	.09	.07	.18	.24	.03	.14	.05
Job Perception	.25	.27	.02	.09	.06	.20	.23	.05	.13	.04
Opportunistic Perception	.33	.33	.01	.14	.10	.29	.29	.01	.17	.07
Entrepreneurial Self-Efficacy	.32	.41	<.001	.20	.16	.30	.39	<.001	.24	.14
Life Goal: Realizing dream	.16	.23	.03	.08	.05	.14	.22	.05	.13	.04
Life Goal: Challenge	.22	.30	.01	.11	.09	.18	.25	.02	.15	.05
Life Goal: Be in the vanguard	.21	.41	<.001	.18	.16	.19	.37	.01	.21	.12
Risk Propensity	.31	.36	.01	.16	.13	.28	.32	.01	.19	.10
Fear of Failure	-.30	-.41	<.001	.17	.14	-.27	-.37	.01	.20	.11
Growth Orientation	.06	.06	.56	.03	.01	-.01	-.01	.96	.09	.01
General Self-Efficacy	.07	.10	.90	.04	.01	.05	.07	.52	.09	.01

a Model 1 controls for sex, age, and job status. ^bModel 2 controls for sex, age, job status, and interest in corporate venturing.

Interest in corporate venturing significantly predicted entrepreneurial interest ($\beta = .28, p < .05$), explaining an additional 6 % of variance after controlling for age, sex, and job status. Although many of our predictors were significantly correlated with an interest in corporate venturing (see the bottom line of Table 1), they still predicted entrepreneurial interest even after we statistically controlled for the variance associated with interest in corporate venturing. As shown in the right half of Table 2, adding interest in corporate venturing in the regression slightly reduced the effect of each predictor but, nevertheless, all the coefficients remained significant, suggesting that these predictors account for entrepreneurial interest beyond the respondents' interest in corporate venturing.

Although growth orientation and general self-efficacy did not directly predict entrepreneurial interest, we expected that they would be associated with the predictors of entrepreneurial interest. As expected, growth orientation significantly predicted a positive belief in innovation ($\beta = .30, p = .001$), job perception ($\beta = .19, p < .05$), opportunistic perception ($\beta = .26, p < .01$), and the goals of realizing their dream ($\beta = .35, p < .001$), trying out something challenging ($\beta = .30, p < .01$), and being in the vanguard ($\beta = .21, p < .05$; see Figure 1). Growth orientation also marginally predicted risk propensity ($\beta = .19, p = .06$), but it did not predict entrepreneurial self-efficacy ($\beta = .02, n.s.$).

Figure 1
Summary Model of Socio-Psychological Factors Predicting Entrepreneurial Interest



General self-efficacy predicted positive belief in innovation ($\beta = .31, p < .001$), job perception ($\beta = .32, p = .001$), entrepreneurial self-efficacy ($\beta = .24, p < .05$), risk propensity ($\beta = .30, p < .01$), and the goals of realizing their dream ($\beta = .22, p < .05$), trying out something challenging ($\beta = .26, p < .05$), and being in the vanguard ($\beta = .20, p < .05$), but it did not predict opportunistic perception ($\beta = .16, n.s.$).

Fear of failure predicted job perception ($\beta = -.24, p < .05$), risk propensity ($\beta = -.33, p < .01$), and realizing their dream ($\beta = -.25, p < .05$), trying out something challenging ($\beta = -.41, p < .001$), and being in the vanguard ($\beta = -.27, p < .01$), but did not predict any of the other variables ($-.15 < \beta s < .01, n.s.$).

Finally, we examined the relationships among general self-efficacy, growth orientation, and the fear of failure. General self-efficacy significantly predicted increased growth orientation ($\beta = .42, p < .001$) but, surprisingly, it did not predict reduced fear of failure ($\beta = -.11, n.s.$). Growth orientation and fear of failure were only moderately correlated ($r = -.20, p < .05$) and did not predict each other even after controlling for sex, age, and job status ($\beta s < -.15, n.s.$)¹.

4. Discussion

The purpose of this paper was to explore the socio-psychological antecedents of entrepreneurial interest in Japan. We examined a wide range of variables that have been previously identified as predicting entrepreneurial interest in European and American cultures and found that most of these variables predict interest in creating start-ups in Japan as well. As predicted, entrepreneurial interest increased as people had more positive beliefs in innovation, perceived themselves as being more responsible for creating work, had more of an opportunistic view towards starting a new business, were more self-confident in starting a new business, and had a higher risk propensity. Entrepreneurial interest also increased as people pursued the goal of realizing their dreams, the goal of meeting challenges, and the goal of being in the vanguard of the time. Fear of failure was the only variable in our study that undermined entrepreneurial interest. Although growth orientation and general self-efficacy failed to predict entrepreneurial interest, they were significantly associated with the predictors of entrepreneurial interest, suggesting that they contribute only indirectly.

Despite the gaps in legislation, the availability of venture capital and the incubation systems between Japan and other Western nations, our study showed that the psychological antecedents of entrepreneurial interest in Japan are very similar to

¹ We repeated the above analyses controlling for interest in corporate venturing. Again, these coefficients remained significant except that growth orientation was no longer a significant predictor of risk propensity ($\beta = .16, n.s.$) and wanting to be in the vanguard of the time ($\beta = .15, n.s.$); fear of failure no longer predicted entrepreneurial self-efficacy ($\beta = -.12, n.s.$).

those found in other nations. We believe that our study has provided an important first step toward cross-cultural comparative study. Future studies should examine the cultural differences in the means of these variables, as well as the differences in the associations between these variables and entrepreneurial interests.

In addition to the fear of failure, which has often been singled out as a psychological culprit and a major contributor to the low start-up rate, our study has shown that other indices of entrepreneurial mindset also contribute to the lack of interest in start-up creation. We found that low entrepreneurial self-efficacy and the lack of desire to be in the vanguard of the time each predicted entrepreneurial interest just as much as did the fear of failure, both in terms of the strength of association and the amount of variance explained. Further studies should explore whether enhancing entrepreneurial mindsets would interact with fear of failure, moderating its negative impact on Japanese entrepreneurial interest. It may help if the Ministry of Economy, Trade, and Industry implemented special training programs that enhance Japanese entrepreneurs' confidence and ambition, together with some institutional and financial reforms to consolidate the necessary infrastructure for entrepreneurial activities.

Our study has a couple of limitations that need to be addressed in future research. One major limitation was the exploratory nature of the study. The model needs to be tested again with a new sample using structural equation modeling before any firm conclusion can be drawn. Moreover, the correlational nature of our data did not allow any causal inferences. Because all the measures were obtained from a single questionnaire, our correlations could be inflated. It would be important in future studies to examine whether an intervention that alters potential entrepreneurs' mindsets would incentivize interest in start-ups, leading to increased start-up creation.

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